

## **REMARKS**

### **I. Introduction**

Claims 7 and 9 to 13 are pending in the present application. In view of the following remarks, it is respectfully submitted that the present application is in condition for immediate allowance, and reconsideration is respectfully requested.

### **II. Rejection of Claims 7 and 9 under 35 U.S.C. § 102(b)**

Claims 7 and 9 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,136,460 ("Chen et al."). It is respectfully submitted that Chen et al. does not anticipate these claims for at least the following reasons.

Claim 7 relates to an electrical contact including: a metallic substrate; and a contact layer in the form of a gradient layer applied on the metallic substrate, the gradient layer being composed of at least two elements, the at least two elements including a first element and a second element, where (a) the first element is silver and forms an alloy with the second element, the second element including one of indium and tin, or (b) the first element is tin and the second element is phosphorus, or (c) the first element is indium and the second element is tin, and where a proportion of the first element and the second element in the gradient layer changes substantially linearly in a direction normal to a plane of the substrate.

Chen et al. do not disclose, or even suggest, that a proportion of a first element and a second element in a gradient layer changes substantially linearly in a direction normal to a plane of a substrate. As is apparent from Figure 1 and column 7, lines 1 to 19, Chen et al. describes a substrate (12) made of copper or a copper-based alloy, the substrate (12) having a tin coating (16) and an anti-tarnish coating (18) applied to the tin coating (16). The anti-tarnish coating (18) may be made of zinc, indium, phosphorus or alloys or mixtures thereof. The tin coating (16) is heated to a temperature sufficient to reflow the surface of the tin coating (16) and diffuse some of the materials of the anti-tarnish coating (18) near an interface (20) of the two coatings, into the tin coating (16). As a result, a concentration gradient of anti-tarnish agents is produced in the anti-tarnish coating (18), the concentration of the anti-tarnish agents decreasing from a first surface (19) of the anti-tarnish coating (18) to the interface (20) of the anti-tarnish coating (18) and the tin coating (16).

**However, Chen et al. nowhere mention that a proportion of tin and/or anti-tarnish agent(s) in coatings (16, 18) changes substantially linearly in a direction normal to a plane of substrate (12).**

In Paragraph 6 of the Response to Arguments Section, the Office Action appears to assert that the passage in column 7, lines 10 to 18 of Chen et al. indicates that the concentration gradient referred to therein meets the above-mentioned feature of claim 7. However, column 7, lines 8 to 19 of Chen et al. read as follows (with reference to Figure 1 of Chen et al.):

The anti-tarnish layer 18 has a higher concentration of anti-tarnish agents at a first surface of the anti-tarnish layer 19 than at the interface with the tin coating (second surface) 20. This increased concentration at the first surface 19 is a result of the reflow process that causes the anti-tarnish agent that was on the surface of the tin coating 16 to be diffused into the tin coating. This reflowing does not homogeneously mix the tin and the anti-tarnish agents, but rather results in a concentration gradient from the first surface 19 of the anti-tarnish layer 18 to the second surface 20, where the anti-tarnish layer 18 interfaces with the tin coating 16.

Thus, the concentration of anti-tarnish agents in anti-tarnish coating (18) decreases from first surface (19) to second surface (20) due to the diffusion of anti-tarnish agents into tin coating (16) during the reflow process, and an anti-tarnish agent concentration gradient is present in anti-tarnish coating (18). However, **Chen et al. does not indicate that this concentration gradient is substantially linear.**

Accordingly, it is respectfully submitted that Chen et al. do not anticipate claim 7 for at least these reasons.

As for claim 9, which depends from claim 7 and therefore includes all of the features of claim 7, it is respectfully submitted that Chen et al. does not anticipate this dependent claim for at least the reasons set forth above.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

### **III. Rejection of Claims 10 to 13 under 35 U.S.C. § 103(a)**

Claims 10 to 13 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Chen et al. and U.S. Patent No. 5,800,932 ("Suzuki et al."). It is respectfully submitted that the combination of Chen et al. and Suzuki et al. does not render these claims unpatentable for at least the following reasons.

Claims 10 to 13 ultimately depend from claim 7 and therefore include all of the features of claim 7. As set forth in greater detail above, Chen et al. does

not disclose, or even suggest, at least the feature of claim 7 that a proportion of a first element and a second element in a gradient layer changes substantially linearly in a direction normal to a plane of a substrate. Suzuki et al. describes an electric contact material made up of a contact substrate (1) and a coating layer (2). The coating layer (2) includes a subsurface portion (2B) made up of an Ag-Li-La alloy, and a surface layer portion (2A) including Au and/or Pd in the base Ag-Li-La alloy. In addition, as indicated in column 2, lines 36 to 45 of Suzuki et al., the surface layer portion (2A) is formed as a concentration gradient layer, the concentration of Au and/or Pd being 50 to 95% by weight at a surface (2a) of the surface layer portion (2A) and decreasing in the direction of the subsurface portion (2B). **However, Suzuki et al. nowhere mention that a concentration of Au and/or Pd changes substantially linearly in a direction normal to the contact substrate (1).** Thus, Suzuki et al. do not cure the deficiencies of Chen with respect to the above-mentioned feature of claim 7. Accordingly, it is respectfully submitted that the combination of Chen et al. and Suzuki et al. does not render unpatentable claims 10 to 13, which depend from claim 7.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

#### **IV. Conclusion**

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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By: /Clifford A. Ulrich/  
Clifford A. Ulrich, Reg. No. 42,194, for:  
Gerard A. Messina (Reg. No. 35,952)

KENYON & KENYON LLP  
One Broadway  
New York, New York 10004  
(212) 425-7200

**CUSTOMER NO. 26646**